L 50500-65   EWT(d)/T   IJP(c)

ir /05 17 /65 /079 /000 /0054 /0063

$$\int_0^\infty d\xi \int d\eta \, \frac{\eta^{-\frac{1}{2}} f(\xi, \eta)}{\ldots} \equiv 0. \quad (1.2)$$

$$\int_0^{dx} \int_0^{} (x - \theta) \, y + \theta \cdots$$

$$R(x, y) = [(1 - x) \cdots y \cdots]$$

CHULANOVSKIY, V.

International Conference on Molecular Spectroscopy in Bologna
(Italy). Opt. i spektr. 8 no.3:429-430 Mr '60.   (MIRA 14:5)
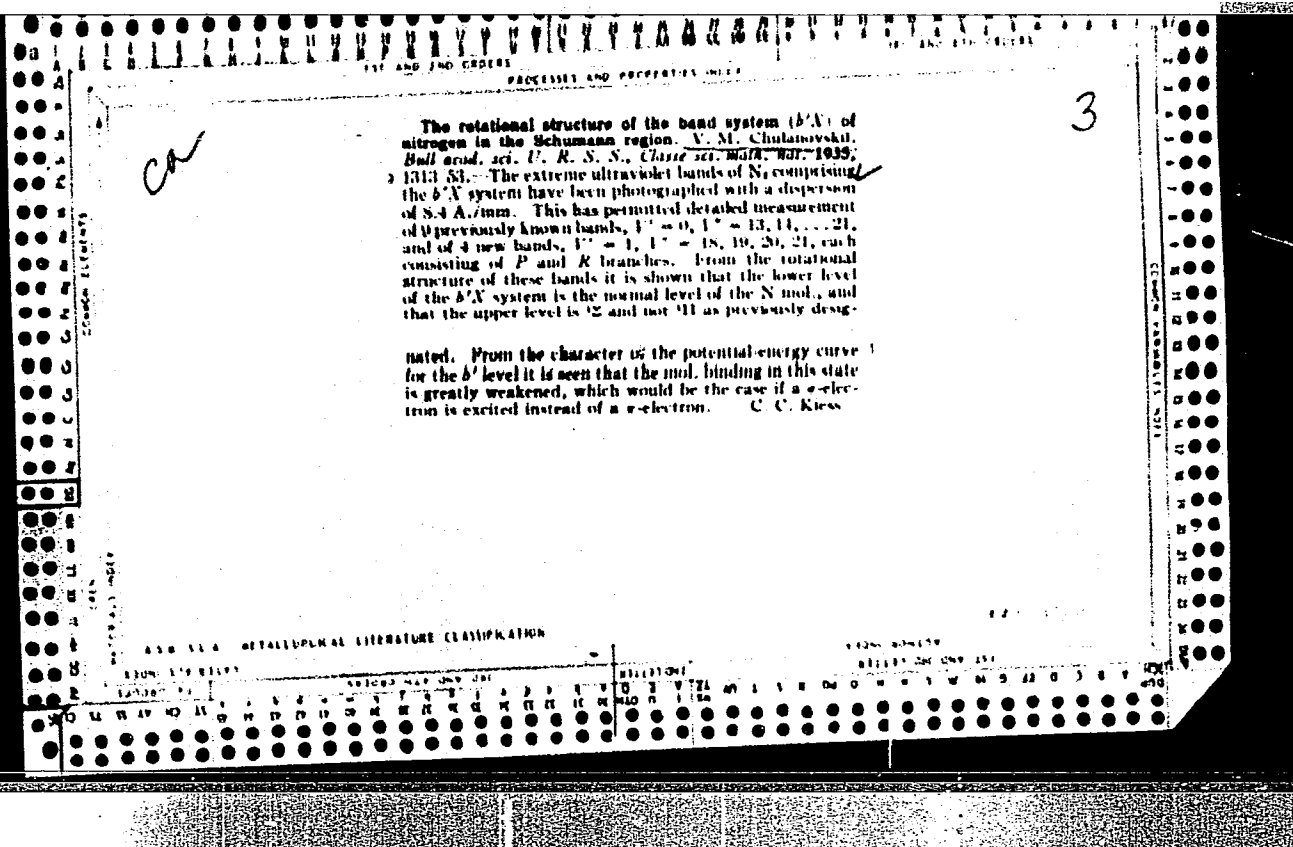(Spectrum, Molecular—Congresses)

CHULITSKAYA, Ye.V.

Latent differentiation of the material of the acoustic vesicle in
the sturgeons Acipenser guldenstadtii and A. stellatus. Dokl.AN SSSR
138 no.3:718-721 My '61.   (MIRA 14:5)

1. Institut morfologii zhivotnykh im. A.N.Severtsova AN SSSR.
Predstavleno akademikom I.I.Shmal'gauzenom.
          (Sense organs—Fishes) (Embryology—Fishes)
                    (Sturgeons)

PROCESSES AND PROPERTIES INDEX

The fine structure of the line He II 1640 A. V. M. Chulanovskii and M. P. Mokhnatkin. Compt. rend. acad. sci. (U.R.S.S.) [N.S.], 1, 471-2 (in German 472-3) (1934).—A photograph and diagram are given showing two groups of lines.　Louis Goldman

A S M - S L A　METALLURGICAL LITERATURE CLASSIFICATION

PROCESSING AND PROPERTIES INDEX

Rotation structure of the nitrogen molecule bands in the Schumann region. V. M. Chulanovskii. *Compt. rend. acad. sci. U. R. S. S.* (N. S.), 1, 473 (in German 476-81) (1934).—New measurements have been made of the N₂ spectrum in the far ultra-violet region and are discussed theoretically.

B. C. A.

A. S. B. - S. L. A. METALLURGICAL LITERATURE CLASSIFICATION

The rotational structure of the band system (b'X) of nitrogen in the Schumann region. V. M. Chulanovskii. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat.* 1935, 1313-53.—The extreme ultraviolet bands of N_2 comprising the b'X system have been photographed with a dispersion of 8.4 A./mm. This has permitted detailed measurement of 9 previously known bands, $v'' = 0$, $v' = 13, 14, \ldots 21$, and of 4 new bands, $v'' = 1$, $v' = 18, 19, 20, 21$, each consisting of P and R branches. From the rotational structure of these bands it is shown that the lower level of the b'X system is the normal level of the N mol., and that the upper level is $^1\Sigma$ and not $^1\Pi$ as previously designated. From the character of the potential-energy curve for the b' level it is seen that the mol. binding in this state is greatly weakened, which would be the case if a σ-electron is excited instead of a π-electron. — C. C. Kiess

3

The fourth positive band group of carbon monoxide in the Schumann region. V. M. Chulanovskii and B. I. Stepanov. Physik. Z. Sowjetunion 10, 292-314(1936); cf. C. A. 30, 5122.—The bands (3,8), (3,7), (2,8), (2,7), (2,6), (1,6) and (1,5) of the fourth pos. CO group have been analyzed. The rotational const. of the levels $X^{1\Sigma}$ and $A^{1}\Pi$, which have been detd. by other authors, have been checked and improved. In all of the bands perturbations were observed and investigated. The method of detg. the rotational consts. of the perturbed triplet term has been improved somewhat. Complete tables of the bands are given.   Harold Gershinowitz

The structure of electronic shells of diatomic homopolar molecules. V. M. Chulanovskii. *Acta Physicochim. U.R. S.S.* 7, 27–48(1937)(in English); cf. *C. A.* 24, 3424.—T. attempts to systematize the rearrangement of electronic shells that must occur in the formation of a mol. The scheme for the structure of the electronic shells for Br. e. g., is given by [Br $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^5]^2$ — [Br° $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} \sigma_s^2 \pi_s^2]^2 (\sigma_s^2)$. The electronic shell of the mol. is divided into 3 subshells. The energy states of the deepest electrons in filled shells are not noticeably changed and the atom symbols are retained. The most essential part of the bond is detd. by the electrons in round brackets; their energy states have lost every resemblance to the at. ones. The role of the incomplete and nonbinding electron shell is less clear but the change in symmetry on formation of the mol. should influence the balance of the energy in some way. Spectroscopic data are used to det. the structures which are given and discussed for 20 diat. mols.
R. O. Wiig

CA

Investigation of the spectra of N_2 and CO in the Lyman region. V. M. Chulanovskii and S. I. Gassilevich. *Physik. Z. Sowjetunion* 12, 83-8(1937)(in German).-- Improvements in design and construction of a vacuum grating spectrograph are described which have permitted a resolving power of 40,000 to be attained with exposures

of 2 hrs. duration. With this instrument the rotational structure of the N_2 bands between 1400 A. and 1000 A. was well resolved. Several new bands of N_2 were noted. Similar well-resolved groups were photographed for CO, including about 30 new bands for which preliminary wave lengths are given.   C. C. Kiess

A5a-1LA   METALLURGICAL LITERATURE CLASSIFICATION

Structure of electronic shells of diatomic homopolar molecules. II. Excited states of molecules. V. M. Chulanovskii. *Acta Physicochim. U. R. S. S.* 8, 113-28 (1938)(in English); cf. *C. A.* 32, 2362. —A detailed and comprehensive analysis, with tabular and graphical representation of the frequencies discussed. G. M. K.

ρα

3

Two new electron levels of the molecule of carbon mon-
oxide. V. M. Chulanovskii. J. Phys. U. S. S. R. 1,
311 (1939).—About 30 bands in the CO spectrum ob-
served from 1300 to 1900 A. are analyzed and interpreted.
A system of bands of the type $^1\Sigma \rightarrow {}^1\Sigma$, with electron level
$\nu_{00} = 90,800$ cm.$^{-1}$ is established and a 2nd system of the
type $^1\Pi \rightarrow {}^1\Sigma$ with $\nu_{00} = 98,701$ cm.$^{-1}$ is described.
W. F. Meggers

A S A . S L A   METALLURGICAL LITERATURE CLASSIFICATION

Ca

7

PROCESSES AND PROPERTIES INDEX

Physical basis of the qualitative and quantitative analysis of mixtures of hydrocarbons with the aid of the molecular scattering of light. V. M. Chulanovskii. *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 83-93(1940).— The possibilities of applying the mol. scattering of light to the analysis of org. mixts. are reviewed and app. and procedures are described.   Roksalana Gamow

A S M - S L A   METALLURGICAL LITERATURE CLASSIFICATION

Application of spectral methods to organic analysis, in part to the analysis of benzines. V. M. Chulanovskii. *Trudy Vsesoyuz. Konferentsii Anal. Khim., Akad. Nauk S.S.S.R.* 3, 74 (1941).—General account of work done in the State Optical Institute (USSR) on ultraviolet and infrared spectral analysis of hydrocarbons. The use of a partial filter of the substance under analysis is described as a means for making the calibration curve straighter through elimination to a large extent of satn. phenomena.   G. M. Kosolapoff

1. CHULANOVSKIY, V. M.

2. USSR (600)

4. Physics and Mathematics

7. Optics, G. S. Landsberg. (General course in Physics, Vol. III, Revised second
    edition, Moscow-Leningrad, State Technical Press, 1947). Reviewed by
    V. M. Chulanovskiy, Sov. Kniga, No. 11, 1948.

9. ▆▆ Report U-3081, 16 Jan. 1953, Unclassified.

CHULANOVSKIY, V. M.

PA 281.

USSR/Physics   Jul/Aug 1947
        Spectral Lines
        Spectroscopy

"Determining the Actual Form of a Spectral Line by
Observation," V. M. Chulanovskiy, A. V. Timoreva, 6 pp

"Iz Ak Nauk, Ser Fiz" Vol XI, No 4

This article sets forth the facts permitting the cal-
culation of distortion factors. Discusses setting up
individual input and output aperatures, calculating
the effect of the width of the output apertures, the
effect of the form of the generated line during the
formation of lines of complex dispersion, and the ef-
fect of the input aperture. Submitted at the Institute
of Physics, Leningrad State University.
                                            28T75

CHULANOVSKIY, V. M.

42060.   CHULANOVSKIY, V. M.; MIRONOVA, A. N. - Kontuo liniy S-N kolebaniy v spektrakh kombin-
         atsionnago passeyaniya sevta. (Doklad i preniya). Izvestiya akad. Nauk SSSR.
         Seriya fiz., 1948, No. 5, s. 560-66- Bibliogr: 12 Nazv.

SO: Setopis' Zhurnal'nykh Statey, Vol. 47, 1948

CHULANOVSKIY, V. M.

25349   LEBEDNKIY, A. I. i CHULANOVSKIY, V.M.
Podgotovka astrofizicheskikh v universitetakh. Vestnik Vyssh. Shkoly, 1948
No. 6, s. 22-24

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

USSR/Chemistry - Spectra, Absorption   Sep/Oct 48
      Chemistry - Hydrocarbons, Halogenated

"Absorption Spectra, Close to Infrared Region, of
Simple Halogen Replacing Paraffin Hydrocarbons,"
V. M. Chulanovskiy, M. P. Timoreva, M. V.
Chulanovskaya, 8 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 5

Hydrocarbons investigated include chloroform, bromo-
form, carbon tetrachloride, tetrachlorethane,
methylene chloride, methyl iodide, toluene and ethyl
bromide. Results are plotted and discussed. In-
cludes 13 graphs.

                                        19/49T6

Contour of the lines of C-H vibration in spectra of Raman scattering. V. M. Chulanovskiĭ and A. N. Mironova. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 500-6 (1948).—The spectra were photographed with a prism spectrograph of 1:2.8 power and fine-grain plates of a resolution of 100 lines/mm. The half width and frequencies of lines of CCl_4, $CHCl_3$, CH_2Cl_2 $(CHCl_3)_2$, $(CH_2Cl)_2$, and $(CH_2Br)_2$ were measured as well as the half width of $CHCl_3$ lines in CCl_4 solns. of different concn. It is shown that the contours of C—H and C—X bond vibrations are the same and that the shape does not depend on the no. of bonds.

S. Pakswer

PA 75T97

May 1948

USSR/Physics
Spectrographs
Light Sources

"Illumination of the Slit of a Spectrograph by a Non-absorbent Three-Dimensional Source of Light," G. G. Slyusarev and V. M. Chulanovskly, Sci Res Phys Inst, Leningrad State U, 8 pp

"Zhur Tekh Fiziki" Vol XVIII, No 5

J. R. Nielsen considered case of a rectangular slit illuminated by a source also of rectangular section (JOSA 20, 701, 1930). Difficulties of this problem are considerable, and Nielsen's formulas are complicated and difficult to apply to practical cases.

Author obtains simpler formulas by considering case of a circular slit illuminated by a cylindrical source. Submitted 11 Dec 1947.

Absorption spectra of halogen-substituted simple paraffins in the near infrared. V. M. Chulanovskii, M. P. Burgova, A. V. Timofeeva, and M. V. Chulanovskaya. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 628–35(1948).—Tl₂S and PbS photoconductive cells were used and attempts were made to remain on the linear portion of the cell response by varying the intensity of the light source during the measurement of deep absorption bands. The liquids were compared to nonabsorbing CCl₄ to obtain 100% transmission response. The 1st, 2nd, and 3d harmonic vibrations of the CHCl₃ mol. are indicated with absorption max. at 5920, 8680, and 11,310 cm.⁻¹. CHBr₃ has a very similar band structure. Comparison of the shape of the curves with the 3-branch curve of intensity distribution in vaporized CHCl₃ indicates that: (1) the free rotation in the gas is replaced by a rotation-vibration; (2) the dipole moment is modified; (3) selection rules are modified. It is shown that pure CHCl₃ has a higher dipole moment than CHCl₃ dissolved in CCl₄. Other curves given are: C₂H₄Cl₂ (2nd harmonic), CH₂Cl₂ (2nd harmonic), CH₃I, and C₆H₅CH₃ (1st harmonic). To resolve the spectra into elementary bands presents some difficulties, which are discussed; a tentative analysis is made of the CHBr₃ spectrum (1st, 2nd, and 3rd harmonics).   S. P.

CA

Analysis of multicomponent mixtures with a differential absorption meter (colorimeter). V. M. Chulanovskii, A. F. Adrianov, and B. I. Rubinovich (Leningrad State Univ.). Zhur. Anal. Khim. 4, 345-53(1949).—This method is based not on eliminating the part of a light beam absorbed by more than one component but on taking into account the differential absorption by various components. The general equation for this method, derived from the Lambert-Beer equation, is $I = d\Sigma c_i K_i$, where I is the light traversing the medium, d is the thickness of the absorbing medium, Σc_i is the summation of concn. of absorbing substances, and $K_i = \int J_\lambda k_{i\lambda} d\nu$ is the integral absorption coeff. K_i depends on the intensity of incident light and on the spectral compn. of this light. By using a number of filters a set of equations is obtained enabling the analysis of a multicomponent mixt. M. Hoseh

CHULANOVSKIY, V. M.

Author: Chulanovskii, V. M.

Title: An introducti n to the spectral analysis of molecules. (Vvedenie v
volekuliarnyi spektral'nyi analiz.) 368 p.

City: Leningrad
Publisher:
Publication: State Printing House of Technical and Theoretical Literature

Date: 1950

Available: Library of Congress

Source: Monthly List of Russian Accessions, v. 3, no. 8, page 522

CHULANOVSKIY, V.M.

C▲

1951

The contour of lines of liquid bromoform and chloroform in Raman and in infrared absorption spectra. V. M. Chulanovskii, M. P. Burgova, and A. N. Mironova. Izvest. Akad. Nauk S.S.S.R., Ser. Fiz. 14, 406-10 (1950). The contour of the C-H vibration lines can be represented by the formula $I_v = a - c(v_0 - v)/(v_0 - v)^2 + b^2$ (a, b, c consts.); the width has been measured for the ground frequency and 3 harmonics. The same width was measured in Raman and in absorption spectra. Neither the width nor the contour is changed by heating to 75°, although the band shifts by 1.5-2.0 cm.⁻¹. The small width of the line is attributed to a transfer of the energy of an excited CH group to an infrared vibration which reduces the duration of the activated state. S. Pakswer

USSR/Physics - Analysis, Molecular   May 50
              Mass Spectra

"Molecular Analysis by Mass Spectra," V. M.
Chulanovskiy, Leningrad State U, 12 pp

"Zavod Lab" Vol XVI, No 5

Discusses possibilities of molecular analysis
with aid of mass spectra. Reviews development
of this new method and achievements in its appli-
cation, and briefly describes equipment and prin-
ciples. All data is based on information from
English-language technical publications.

160T95

CHULANOVSKIY, V. M.

PHASE I   TREASURE ISLAND BIBLIOGRAPHICAL REPORT   AID 595 - I

BOOK   Call No.: AF653761
  Author: CHULANOVSKIY, V. M.
  Full Title: INTRODUCTION TO MOLECULAR SPECTRAL ANALYSIS. 2nd ed.
  Transliterated Title: Vvedeniye v molekulyarnyy spektral'nyy analiz.
                         Izd. vtor.
PUBLISHING DATA
  Originating Agency: None
  Publishing House: State Publishing House of Technical and Theoretical
    Literature
  Date: 1951   No. pp.: 416   No. of copies: 6,000
  Editorial Staff: Prof. G. G. Slyusarev, Prof. B. I. Stepanov and
                    Dotsent M. G. Veselov
PURPOSE: A textbook for inexperienced laboratory workers studying the
    basic principles of molecular analysis to train themselves for the
    correct selection of suitable test methods.
TEXT DATA
  Coverage: The book is composed of material presented in various lec-
    tures and consultations on molecular spectroscopy used in industrial
    analysis of the composition of materials and to indicate the presence
    of additives and physical defects. Molecular analysis is described
    under consideration of different absorption methods in the ultra-
    violet and infrared regions as well as of the Raman effect. The
                              1/3

Vvedeniye v molekulyarnyy spektral'nyy analiz.   .   AID 595 - I
Izd. vtor.

    quantative analysis of a mixture of aromatic hydrocarbons in the
ultraviolet region of the spectrum; ultraviolet light lamp designed
by B. A. Ostroumov and the hydrogen lamp by M. K. Ivanov.

3/3

CHULANOVSKIY, V. M.

"Analysis of Multiple-Component Blends by Means of Differentiated Absorption
(Calorimetry)," Agitator's Notebook No. 3, 1951, and Journal of Analytical
Chemistry, Vol. 6, No. 1.

C A

Analyses of multicomponent mixtures with a differential absorption meter (colorimeter). II. Visible range. V. A. M. Chulanovskii. Zhur. Anal. Khim. 6, 21 6(1951); cf. C.A. 45, 3705f. The method described previously is somewhat modified by using light filters of distinct short-wave transmission limits. When 2 such filters are placed on either side of a light source in a circuit contg. a galvanometer, the latter will register the difference in the light transmitted by both filters. M. Hunch s

CHULANOVSKIY, V. M.

USSR/Physics - Absorption Spectrum,   Sep/Oct 53
    Infrared

"Infrared Absorption Spectrum of N-H Group of Secondary Amines," V. M. Chulanovskiy, Phys Inst, Leningrad State Univ

Iz Ak Nauk, Ser Fiz, Vol 17, No 5, PP 624-631

Investigation of infrared band of N-H group of secondary amines revealed its intermediate properties with respect of O-H and C-H. It also facilitated the establishment of a unique scheme of analysis of interaction of the group X-H with other molecules. Indebted to M. P. Burgova.

274T96

CHULANOVSKIY, V. M.

USSR/Physics - Solid State Physics

Nov 53

"Conference on the Liquid State of Matter, Held 28-30 May 1953 at Kiev by the Academy of Sciences, Ukrainian SSR, and Kiev State University im T. G. Shevchenko," S. D. Ravikovich, G. F. Roshchina and L. F. Skryshevskiy

Usp Fiz Nauk, Vol 51, No 3, pp 393-405

Summarize reports by the following: V. I. Danilov, on scattering of x-rays in liquids; A. F. Skryshevskiy, on x-ray study of solns of KOH, NaOH, LiOH, LiCl, and H_2SO_4; Ye. A. Foray-Koshits, on integral analysis of intensity curves; P. V. Deragin, Ye. G. Shvidkovskiy, C. Ya. Samoylov et al. on x-ray studies of liquid structure; A. Z. Golik, on characteristics of molecular structure of liquids; I. V. Radchenko, on modeling of liquids; F. K. Shestakovich, on new liquid models and influence of central and dipole forces on close ordering; A. Z. Golik and his associates S. D. Ravikovich, A. V. Orish-chenko, V. T. Solomko, and N. A. Ryndich, on viscosity and density of matter in the liquid state; V. M. Chulanovskiy and D. S. Kamenetskaya, on the influence of molecules' size and the intermolecular intensity on viscosity coeff; A. P. Frynza, on thermo-diffusion in binary systems; S. S. Urazovskiy, presence of grouping of identical atoms; A. R. Fegel', on relation between electrical properties and structure of liquids; M. F. Vuks, on light-dispersion method for studying liquids' structure.

CHULANOVSKIY, V. M.

USSR/Physics - Infrared, Spectrum   1 Nov 53

"Infrared Absorption Spectrum of O-H Group in Water and Some Aqueous Solutions," V. M. Chulanovskiy, Leningrad State U

DAN SSSR, Vol 93, No 1, pp 25-28

Analyzes oscillatory spectroscopy of carbonic acids, alcs and water containing OH; in particular, absorption curves of me groups and solns in acetone, diethyl ether and CCl_4, obtained by M. G. Batishcheva in the Univ lab, and absorption curves of OH groups by water and solns, plotted by author. Presented by Acad A. A. Lebedev 30 Jun 53.

275T90

Chulanovskiy, V. M.

USSR/ Physics

Card 1/2

Pub. 43 - 46/62

Authors   : Chulanovskiy, V. M., and Kim Den Dok

Title   : Intermolecular bond of the (OH)...(OH) and (OH)...(OCR) types in oxygen containing substances

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 720-721, Nov-Dec 1954

Abstract   : An investigation was conducted to determine the effect of an intermolecular bond in pure acetone and its solutions on the position and form of absorption bands of the $C = O$ group of the acetone and on the absorption band of the $C - O$ group of methyl alcohol. It was assumed that the displacement of the absorption band of a group, which is exposed to the effect of an external field, is in itself a measure of the magnitude of this effect. It was

Institution : The A. A. Zhdanov State University, Phys. Inst., Leningrad

Submitted : .....

Card 2/2   Pub. 43 - 46/62

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 720-721, Nov-Dec 1954

Abstract   : found that if the intermolecular bond is not formed with the group
investigated but with the adjacent one then the distortion of the electron
shell caused by the bond may lead to strengthening of the bond in the group
investigated. One USSR reference (1953).

CHULANOVSKIY, V. M.

"Infrared Spectra of Absorption of Solutions of Nonelectrolytes", a paper
presented at the second conference on the Liquid State of Matter, Kiev, 30 May to
3 June 1955, Usp. Fiz. Nauk, April 1955

CHULANOVSKIY, V. M.

Electronic absorption spectra of benzene and its solutions in ethanol and hexane. V. M. Chulanovskii, T. G. Meister, and O. V. Sverdlova. *Vestnik Leningrad. Univ.* 10, No. 8, *Ser. Mat. Fiz. i Khim.* No. 3, 123–7(1955); cf. *C.A.* 49, 13770*i*.—The position and half-width of 2 benzene absorption bands ($n = 39,225$ and $n = 38,295$ cm.$^{-1}$) were studied as a function of the concn. of benzene in two different types of solvent, EtOH and hexane. The concns. varied from 0.0013% to 100%. Both bands, in both solvents, show a gradual pos. peak-frequency shift up to a displacement of about 120 cm.$^{-1}$ for concns. decreasing from 100% to about 5%. After this the position of both bands remains const. The half-width of n decreases by about 100 cm.$^{-1}$, and that of n decreases by about 80 cm.$^{-1}$, for both solvents, with the same concn. dependence as for the frequencies. These phenomena are explained on the basis of the vibrational structure of the electronic bands, by suggesting that the contour of the bands, in the main, is detd. by the strong vibrational "breathing" frequencies of benzene. A variation in concn. effects a redistribution of vibrational transition probabilities, and thus a change in the band contours. Since the changes were approx. the same in both solvents, it is postulated that the greatest interactions giving rise to band contour changes take place between the excited and unexcited benzene mols., rather than between solvent mols. and benzene. This also explains the constancy of frequency and band width at the lower concns. For instance, the av. sepn. of benzene molecules at a 1% concn. is about 25 A.   R. D. Kross

CHULANOVSKIY, V. M.

USSR/ Physics - Chemical physics

Card 1/1   Pub. 127 - 9/13

Authors   : Chulanovskiy, V. M.; Meyster, T. G.; and Struzhenskaya, Ye. N.

Title   : Study of the contour of electron absorption bands for liquid
              benzene and its solutions

Periodical : Vest. Len. un. Ser. mat. fiz. khim. 10/2, 143-147, Feb 1955

Abstract   : The study of electron absorption spectra of benzene and its derivatives
              was carried out for the purpose of determining the intermolecular reac-
              tions occurring during electron excitation of the molecules. The effect
              of the solvents on the absorption band intensity is explained. Data are
              presented regarding the interaction between benzene molecules and the
              molecules of the solvent (water and hexane). Twelve references: 1
              USSR and 11 USA (1934-1953). Graphs.

Institution : ....

Submitted   : March 20, 1954

CHULANOVSKIY, V.M.; MEYSTER, T.G.; SVERDLOVA, O.V.

Electron absorption spectra of benzene and its solutions in ethyl alcohol and normal hexane. Vest.Len.un. 10 no.8:123-127 Ag '55.　　　　　　　　　　　　　　　(MLRA 9:1)

(Benzene--Spectra) (Absorption, Spectra)

CHULANOUSKIY, V.M.

USSR/Physics -

Card 1/1   Pub. 22 - 16/49

Authors   : Chulanovskiy, V. M.

Title   : Displacement of the infrared absorption band of the C = O group of action in solutions

Periodical   : Dok. AN SSSR 101/3, 457-459, Mar 21, 1955

Abstract   : An experiment study is described of the effect of various solvents especially those containing the Ch group, on oscillations of the C = O group of aceton,for the purpose of determining whether the displacement of the V = O oscillation in the case of (OH)...(OCR) is especially large as in the case when the hydroxyl group of the neighboring molecule affects the Vo. The study was conducted with the help of an infrared spectrophotometer and constructed at the Physical Institute of Scientific Research (NIFI) of the Leningrad State University. Four USSR references: (1945-1953). Table; graphs.

Institution : The A. A. Zhdarov State University, Leningrad

Presented by : Academician A. N. Terenin, October 25, 1954

Chulanovskiy, V. M.

USSR/ Physics - Physical chemistry

Card   1/1.   Pub. 22 - 17/52

Authors   :   Chulanovskiy, V. M.

Title   :   Infra-red absorption band of the C-O group of methyl alcohol and its solutions

Periodical :   Dok. AN SSSR 101/4, 649-652, Apr 1, 1955

Abstract   :   Experiments with the C-O group (of molecules) of methyl alcohol are described. The experiments were conducted to deterime the effect of a solvent on the infra-red absorption band which, in return, should help to determine the magnitude and characteristics of the intermolecular bonds, in particular the H-O bond and its effect on the C-O group fluctuations. The experiments were conducted with the help of a spectrophotometer of the 1KS6 type. Five references: 4 USSR and 1 USA (1938-1955). Graphs.

Institution :   A. A. Zhdanov State University in Leningrad
Presented by :   Academician A. N. Terenin, October 25, 1954

CHULANOVSKIY, V.M., professor, otvetstvennyy redaktor; BARKOVSKIY, I.V., redaktor; VODOLAGINA, S.D., tekhnicheskiy redaktor.

[Application of methods of spectroscopy to processed foodstruffs and in agriculture; papers of a conference held in Leningrad July 4 - 7, 1955] Primenenie metodov spektroskopii v promyshlennosti prodovol'stvennykh tovarov i sel'skom khoziaistve; materialy soveshchaniia, sostoiavshegosia v Leningrade 4 -7 iiulia 1955 g. [Leningrad] 1957. 263 p.
(MLRA 10:5)

1. Leningrad. Universitet.
                    (Spectrum analysis)

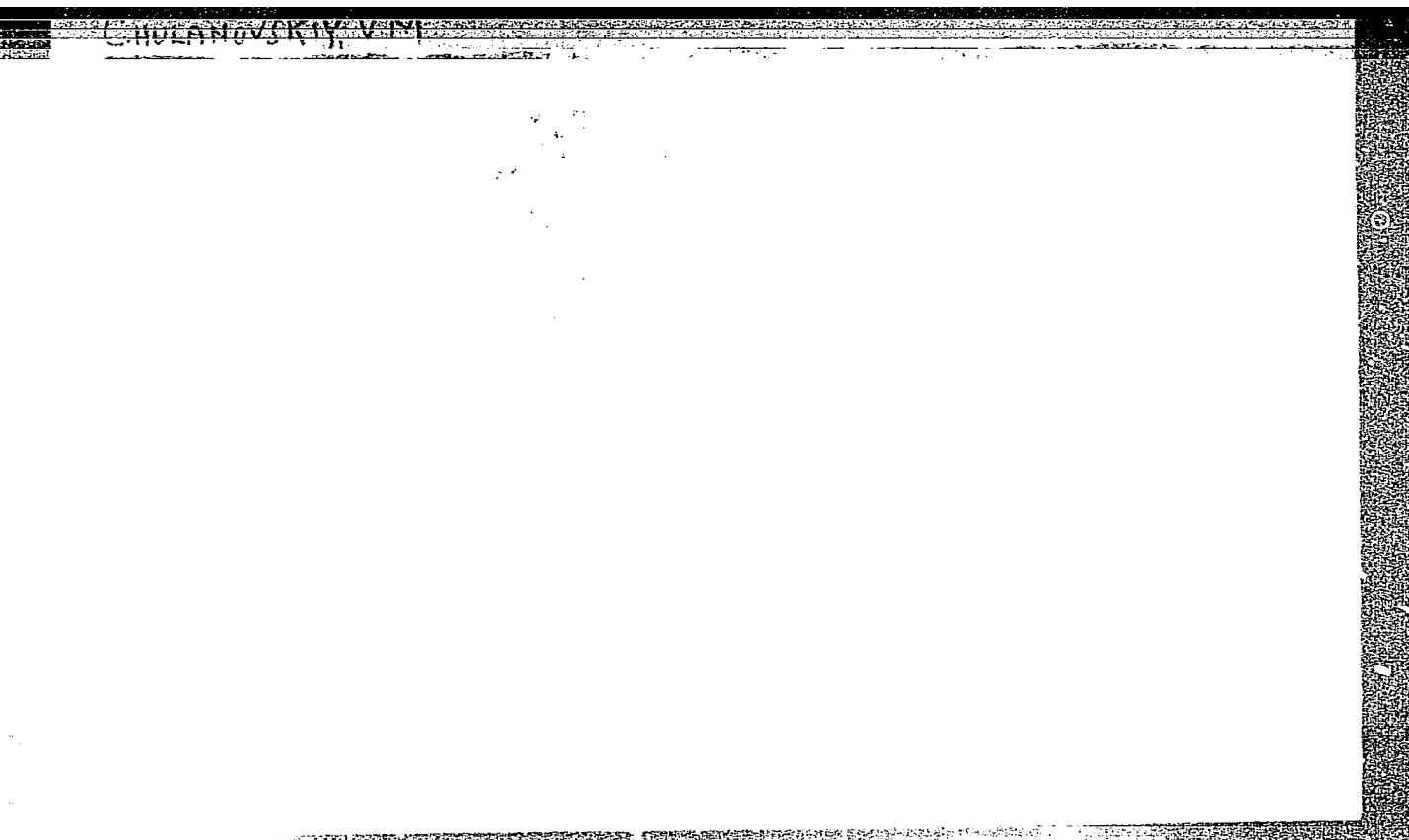*CHULANOVSKIY, V. M.*

MANDEL'SHTAM, S.L.; CHULANOVSKIY, V.M.

The Tenth All-Union Conference on Spectroscopy and its
Applications. Opt. 1 spektr. 2 no.1:143 Ja '57.   (MLRA 10:2)

(Lvov--Spectrum analysis--Congresses)

CHOLANOVSKIY V.N.

On intermolecular interactions in solutions of chloroform
and bromoform. (Cont.)   51-3-8/24

of binding are used. For the first type of binding we have:-
(1) monotonic displacement of the absorption band and
    decrease of the intensity of the fundamental valency
    frequency on decrease of the solute concentration;
(2) practical constancy of the total absorption and the
    small displacement of the deformation and the first
    valency harmonic bands with change of the solute
    concentration or replacement of one solvent by another.
For the second type of binding:-
(1) new ("solution") bands of deformation vibrations and of
    fundamental valency vibrations are observed; their
    intensity increases with decrease of the solute concen-
    tration. The positions of the new and the original
    (pure solute) bands are practically constant and the
    total absorption of each pair, consisting of a new and
    an original band, remains roughly constant;
(2) the valency band total absorption increases with decrease
    of the solute concentration.
Card 2/3   Using these criteria solutions of $CHCl_3$ and $CHBr_3$ in CS_2,
            CCl_4 and C_6H_{12} are assigned to the first type of binding.
            Solutions of $CHCl_3$ in diethyl ether and acetone, and of

CHULANOVSKIY, V. M.

AUTHORS: Chulanovskii, V.M. and Burgova, M.P.   51-4-5/25
TITLE: On the intermolecular interaction in solutions of chloroform
       and bromoform. II. (O mezhmolekulyarnom vzaimodeystvii v
       rastvorakh khloroforma i bromoforma. II).

ABSTRACT: This is continuation of earlier work: Pt.I in Optika i
          Spektroskopiya, Vol.2, No.3, pp.330-338, 1957 (see
          abstract in the March issue). Wave-numbers of the CH
          absorption band maxima of the fundamental valency and
          deformation vibrations are plotted for pure $CHCl_3$ (liquid
          and vapour), pure $CHBr_3$ (liquid) and for a number of
          solutions of these two substances. For the valency
          vibrations the wave-numbers of all solutions of $CHCl_3$ were
          smaller than the wave-number of the pure $CHCl_3$ (liquid
          or vapour). The wave-numbers of the valency vibrations
          of the $CHBr_3$ solutions were either slightly higher or
          lower than the pure (liquid) $CHBr_3$ wave-number. In those
          solutions where the first type of binding (a solute
          molecule interacts with many neighbours) occurs the dis-
          placement of the CH valency and deformation maxima from
          the pure solute position was comparatively small. In the

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51-4-5/25

On the intermolecular interaction in solutions of chloroform
and bromoform. II. (Cont.)

to the force constant of a free AB molecule are calculated;
they represent the A – B bond weakening and B...C attraction
respectively. Behaviour of deformation vibration absorption
for the two types of binding is explained on the above model.
There are four figures and three references, all of which are
Slavic.

SUBMITTED: September 10, 1956.
AVAILABLE: Library of Congress

Card 3/3

CHULANOVSKIY, V. M.

     "Spectoscopic Studies of Hydrogen Bonding," paper submitted at the
Symposium on Hydrogen Bonding, Ljubljana, 29 Jul - 3 Aug 57

CHULANOVSKIY, V.M.; BURGOVA, M.P.; DENISOV, G.S.; ZHUKOVA, Ye.L.

Infrared absorption study of molecular bonding characteristics in nonelectrolytic solutions. Fiz. sbor. no.3:42-51 '57. (MIRA 11:8)

1. Leningradskiy ordena Lenina gosudarstvennyy universitet im. A.A. Zhdanova.
(Solution (Chemistry)) (Chemical bonds) (Dielectrics--Spectra)

CHULANOVSKIY, V.M.

PRIKHOT'KO, A.F.

24(7)   p-3   PHASE I BOOK EXPLOITATION   SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1:
Molekulyarnaya spektroskopiya (Papers of the 10th All-Union
Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy)
[L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies
printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
spektroskopii. Ed.: Jazer, S.L.; Tech. Ed.: Saranyuk, T.V.;
Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased),
Neporent, B.S., Doctor of Physical and Mathematical Sciences,
Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences,
Fabrikant, V.A., Doctor of Physical and Mathematical Sciences,
Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M.,
Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K.,
Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S.,
Candidate of Physical and Mathematical Sciences, and Glauberman,
A. Ye., Candidate of Physical and Mathematical Sciences.

Card 14/30

CHULANOVSKIY, V.M.,

"Spectroscopic Studies of H-Bonding," report submitted at IUPAP Symposium on Nature of Hydrogen Bonding, Ljubljana, Yugoslovakis, 30 July - 3 Aug 57.

Trans. Encl. B-3,096,177, 20 Jan 58.

AUTHOR: Chulanovskiy, V. M.   SOV/48-22-9-24/4o

TITLE: On the Problem of the Definition of the Concept of
            "Hydrogen Bond" (K voprosu ob opredelenii ponyatiya
            "vodorodnaya svyaz'")

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958,
            Vol 22, Nr 9, pp 1103 - 1106 (USSR)

ABSTRACT: In this paper the author attempts to draw attention
            to such experimental manifestations of the hydrogen
            bond which are characteristic only of this type of
            bond. He moreover intends to relate these manifestations
            to the peculiar properties of the hydrogen atom by
            which it is distinguished from other atoms. The first
            ostensible feature of the formation of a saturated
            hydrogen bond is obviously the noticeable increase of
            the absorption intensity in the ground frequency of
            the valence oscillations of those XH groups which take
            part in the intermolecular bond (Refs 1,2). Other
            features characteristic of the hydrogen bond are to be
            sought in such properties of the XH groups which are
Card 1/4   influenced by the extraordinarily small dimensions

On the Problem of the Definition of the Concept of   SOV/48-22-9-24/4o
"Hydrogen Bond"

of the hydrogen nucleus. The manifestations of the
hydrogen bond become most pronounced in bond of the
hydrogen atom with the halogen or oxygen atom. The
penetration of the proton into the electron shell
of the partner is not a feature sufficient for a
characterization of the hydrogen bond. At present
only few phenomena are known, which, besides, have
not been fathomed at all, permitting a precise definition
of the concept of hydrogen bond. A confrontation of
these phenomena, however, can be very useful for further
work. The phenomena observed can be explained as con-
sequences of the noticeable reduction of the shielding
of the proton by the electron cloud of the partner.
This explanation appears to be very probable, as it
was offered independently by the investigation of all
cases. This explanation leads to conceptions concerning
the nature of the phenomenon that the manifestations of
the hydrogen bond become less distinct if it proceeds
from the first row of the periodic system to lower
rows the elements of which possess a larger electron

Card 2/4

On the Problem of the Definition of the Concept of   SOV/48-22-9-24/4o
"Hydrogen Bond"

shell. In this and in the case of a transition from
the upper right corner of the periodic system (F) to
the left the participation of the hydrogen bond in the
actually existing bond decreases continually. Thus the
concept of hydrogen bond is less and less definable,
in correspondence with the above classification. There
are 2 figures and 6 references, 4 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
               gos. universiteta im. A.A.Zhdanova (Scientific Research
               Institute of Physics at the Leningrad State University
               imeni A.A.Zhdanov)

Card 3/4

CHULANOVSKIY, V. M.; BULANIN, M. O.; DENISOV, G. S.; and SHUVALOVA, E.

"Infrared Absorption Spectra of Some Two- and Three Component Solutions with Hydrogen Bonding."

report submitted at the 4th International Meeting of Molecular Spectroscopy, Bologna, Italy, 7-12 Sept 1959.

Physical Institute of the University, Leningrad.

CHULANOVSKIY, V.M.

24(8)

PHASE I BOOK EXPLOITATION SOV/2809

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk

Termodinamika i stroyeniye rastvorov; trudy soveshchaniya... of the (Thermodynamics and Structure of Solutions; Transactions of the Conference Held January 27-30, 1958) Moscow, Izd-vo AN SSSR, 1959. 295 p. 3,000 copies printed.

Ed.: M. I. Shakhparonov, Doctor of Chemical Sciences; Ed. of Publishing House: M. G. Yegorov; Tech. Ed.: T. V. Polyakova.

PURPOSE: This book is intended for physicists, chemists, and chemical engineers.

COVERAGE: This collection of papers was originally presented at the Conference on Thermodynamics and Structure of Solutions sponsored by the Section of Chemical Sciences of the Academy of Sciences, USSR, and the Department of Chemistry of Moscow State University, and held in Moscow on January 27-30, 1958. Officers of the conference are listed in the Foreword. A list of other reports also read at the conference, but not included in this book, are given. Among the problems treated in this work are: electrolytic solutions, ultrasonic measurement, dielectric and thermodynamic properties of various mixtures, spectroscopic analysis, etc. References accompany individual articles.

CHULANOVSKIY, V.M.

Defining the concept of "hydrogen bond." Izv. AN SSSR. Ser. fiz.
22 no.9:1103-1106 S   '58.

1.Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
gosudarstvennogo universiteta imeni A.A. Zhdanova.
                    (Bonds, Chemical)

5(0), 24(7)   SOV/63-4-2-6/39

AUTHOR: Chulanovskiy, V.M., Professor

TITLE: Molecular Spectral Analysis in the Chemical Industry

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2,
               pp 172-178 (USSR)

ABSTRACT: The structure of molecules, their bonding with other molecules, changes
               during operation and deformation, etc, is studied by molecular spectral
               analysis. The principal spectral value is the wave number $\frac{1}{\lambda}$, where λ
               is the wavelength. The intensity of the band shows the distribution of
               the charge within the molecule. Recently, new methods, like micro-
               wave absorption spectra, paramagnetic resonance, diffraction of X-rays,
               electrons and neutrons, have been used in molecular analysis. Oscil-
               lating movements of molecules and atomic groups taking part in inter-
               molecular bonding are investigated by spectroscopy. The spectrum of the
               combined diffusion of light conveys directly the wave number of the
               inner-molecular oscillations as the difference between the wave numbers
               of the excited and the observed band. For this purpose a three-prisma
               spectrograph ISP-51 has been developed in the USSR /Ref 3/. Artificial
Card 1/3   mixtures have been developed to be used as patterns in quantitative ana-

lysis. The optical Laboratory of the Fizicheskiy institut (Physical
Institute) and the Laboratory of Catalytic Synthesis of the Institut
organicheskoy khimii (Institute of Organic Chemistry) of the AS USSR
have developed an objective characteristic of intensities for 278 hydro-
carbons of various classes /Ref 9/. The double monochromator DFS-12
with two diffraction grids /Ref 3/ furnishes all the data given in
/Ref 9/. The absorption spectroscopy in the infrared region has the
advantage that no photochemical reactions or fluorescence take place.
The wave number and the intensities are very sensitive to the influence
of adjacent active atoms or double bonds so that it is possible to de-
termine where the carbonyl group C=O belongs to in ketones, aldehydes,
complex ethers, etc. The degree of ramification, the crystallinity of
a polymer, etc, can be determined by the same method. The spectro-
photometer IKS-12 operating in the range of 1 - 25 μ is mostly used for
infrared spectrometry. Absorption spectroscopy makes possible to de-
termine the absolute intensity, i.e. the intensity which does not depend
on the energy action on the molecule. During quantitative analysis the
probability of absorption must be kept constant by using artificial mix-
tures or by diluting the analyzed mixture in a neutral solvent to a very
low concentration. The individual components should have characteristic
Card 2/3   isolated spectral bands. Deviations caused by the apparatus may be

Molecular Spectral Analysis in the Chemical Industry   SOV/63-4-2-6/39

eliminated $\underline{/}$Ref 1, 2$\underline{/}$. The final breadth of the slit also affects the measured results appreciably. Quantitative analysis on the one-ray spectrophotometer IKS-12 is very laborious. Therefore, the two-ray apparatus IKS-14 has been developed. The concentrations in multi-component systems are calculated with the help of computers. Electron spectra are measured with the spectrographs ISP-22 and ISP-28. They operate in the range of 2,200 Å to the long-wave end of the visible spectrum. These spectra are used for the investigation of double bonds, of substances containing chromophors, antibiotics, vitamins, dyes, etc. Aqueous solutions which absorb infrared rays are also in-vestigated by this method. The spectroscopy of reflected light is a new branch of this method. Live matter may be investigated without damage. The differential electrophotocolorimeters FEKM $\underline{/}$Ref 29$\underline{/}$ and FEK-56 $\underline{/}$Ref 30$\underline{/}$make the investigation of multi-component mixtures possible $\underline{/}$Ref 28$\underline{/}$. Specialists for the mentioned fields of science should be educated in the physical and chemical faculties of the uni-versities. There are 35 references, 17 of which are Soviet, 12 English, 4 American and 2 German.

Card 3/3

67155

SOV/51-7-6-9/38

24.3410

AUTHORS: Chulanovskiy, V.M., Peysakhson, I.V. and Shchepkin, D.N.

TITLE: Determination of the Absolute Values of Parameters Characterizing the
             Intensity in Infrared Absorption Spectra in the Absence of Secular
             Distortions

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, No 6, pp 763-769 (USSR)

ABSTRACT: In currently used infrared single-beam automatic-recording
             spectrophotometers the so-called secular distortions, due to inertia
             of the amplifying and recording parts of the apparatus at the usual
             scanning rate cause great difficulties in determination of the
             true values of spectral parameters. The authors employed the following
             method which avoids these secular distortions. Recording was started
             with the beam cut off in order to obtain the zero level of intensity.
             Then a cell containing pure solvent was introduced into the beam (the
             corresponding intensity was I_0). As soon as the recorder started to
             draw a straight line parallel to the zero line a cell containing solution
             was introduced into the beam and the corresponding intensity I recorded.
             Again when the recorder began to draw a line parallel to the zero line
             the beam was cut off completely. In this way a record shown in a figure

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SOV/51-7-6-9/38

Determination of the Absolute Values of Parameters Characterizing the Intensity in
Infrared Absorption Spectra in the Absence of Secular Distortions

on p 764 was obtained. The time lost by this process was fully
compensated by the great simplicity and reliability of measuring
intensity I, which was required to determine optical density. The
return to zero after each cycle of measurements avoids the necessity of
controlled records. Under the conditions described, the secular
distortions are avoided entirely and the distortions due to noise can
be easily found. The authors describe three methods of determining
spectral parameters, such as optical density at the band maximum,
integral density and half-width of the band, corrected for distortions
due to the monochromator and expressed in terms of the latter's apparatus
function.   The computational work reported in this paper was carried out
by I.V. Peysakhson and the experimental part was carried out by
D.N. Shchepkin. There are 1 figure and 5 references, 3 of which are
Soviet and 2 English.

SUBMITTED: May 14, 1959

Card 2/2

5(4)

AUTHORS: Tsekhovol'skaya, D. I., Zavaritskaya, T. A., Denisov, G. S., SOV/32-25-3-16/62
Chulanovskiy, V. M.

TITLE: The Use of Infra-red Spectroscopy for Analysing Titanium Tetra-
chloride (Primeneniye infrakrasnoy spektroskopii k analizu
chetyrekhkhloristogo titana)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 300-302 (USSR)

ABSTRACT: A lecture on this investigation was given at the XII Vsesoyuznoye
soveshchaniye po spektroskopii (Twelfth All Union Conference of
Spectroscopy) in Moscow in November 1958. The properties of
titanium depend considerably on the minimum amount of impurities.
It is not possible to determine all admixtures of $TiCl_4$ by the
chemical and physico-chemical analyses being used at present. In
the present investigation the composition of various admixtures
of $TiCl_4$ was investigated and methods of their quantitative de-
termination by means of infra-red absorption spectra have been
worked out. The spectrometers IKS-6, IKS-12, and Perkin Elmer
12-V were used in the investigations. Various technical samples
Card 1/2 of $TiCl_4$ showed a considerable amount of spectral bands which

The Use of Infra-red Spectroscopy for Analysing Titanium Tetrachloride

came from various admixtures, as e.g., $VOCl_3$, $SiCl_4$, $TiOCl_2$, C_6Cl_6, $CH_2ClCOCl$, $CHCl_2$, $COCl$, CCl_3COCl, HCl, $COCl_2$, CO_2. It was found that the hydrolysis of $TiCl_4$ proceeds with formation of oxychlorides of the type Ti-O-Ti and Ti=O and not of hydroxy-chlorides. The determinations of $VOCl_3$ and $COCl_2$ are given. CO_2 was determined from the maximum at $\nu = 2338 cm^{-1}$, whereas chlorine-substituted acetylchlorides were determined from the oscillations of the C=O group. The solubility of CO_2, HCl, $COCl_2$, and C_6Cl_6 in $TiCl_4$ could be determined by means of the investigation results which also showed that, with a $TiCl_4$ ex-cess, the hydrolysis proceeds according to the scheme $TiCl_4 + H_2O \longrightarrow TiOCl_2 + 2 HCl$. There are 1 table and 5 references, 1 of which is Soviet.

ASSOCIATION: Vsesoyuznyy alyuminiyevo-magniyevyy institut (All-Union
Card 2/2   Aluminum-Magnesium Institute)

24 (7)

AUTHOR: Chulanovskiy, V. M.   SOV/53-68-1-11/17

TITLE: Measurement of the Intensity of Infrared Spectra (Izmereniye
               intensivnosti v infrakrasnykh spektrakh)

ABSTRACT: This article gives a survey of the present stage of measuring
               methods in infrared spectroscopy. It deals only with methods
               of measuring the intensity in absorption spectra, i.e. with
               the investigation of the spectral distribution of the
               absorption coefficient k_ν. For flux I_ν, which penetrates the

               absorbent layer, it holds $I_\nu = I_{0\nu} e^{-k_\nu d}$ according to Burger's

               law, and for the absorption coefficient k it holds

               $k_\nu = \frac{1}{c} Nh\nu g(\nu)$. $I_{0\nu}$ denotes the flux hitting the absorbent

               layer, N = the number of molecules capable of absorbing a
               radiation quantum $h\nu$, and $g(\nu)$ = the probability of one
               process of absorption. These ratios as well as those of
               mixtures where c_i denotes the concentration of the individual

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components are discussed in brief. In this case the Burger-

Beer law holds: $I_y = I_{0y} e^{-\Sigma k_{yi} c_i d}$, which is practically
applied to analyses. Further, the optical density
$D_y = \ln(I_{0y}/I_y)$ is of analytical interest. In the following
section the author explains the difficulties arising in the
measurement of absorption intensities in the infrared. The
most serious difficulty is caused by the disturbance
resulting from the finite width of the monochromator slit;
consequently, the intensity in the spectrum is distributed in
the form of an isoscelic triangle (Fig 2), which results
particularly in a lowering and widening of the absorption
peaks. The author gives then a detailed description of the
determination of the true half width of the lines or bands,
of the true maximum absorption coefficient as well as of the
total absorption coefficient for which it holds
$K^{(true)} = \int k_y^{(true)} d\nu$. Further, he explains the connection

Card 2/3   between them and the corresponding values obtained. Also the
theoretical consideration of the distortion of the values

Measurement of the Intensity of Infrared Spectra   SOV/53-68-1-11/17

obtained and the corresponding connections are discussed. For
the ratio of the absorption coefficients it holds
$k_{max}^{(obs)} = 0.82\ k_{max}^{(true)}$; on the assumption that the bands have
dispersion form the factor amounts to 0.83, while it is 0.89
in the case of Gaussian band form. Finally, the author
describes the method of the basic line (Refs 12-16, Fig 5) which
in all cases where the component to be determined in the
solvent, which may be complex and of unknown composition,
exhibits a definite (declining) tendency of the absorption
curves (Fig 5). In conclusion, some practical examples are
given. There are 6 figures and 18 references, 5 of which are
Soviet.

Card 3/3

68311

24.3410

SOV/51-8-1-10/40

AUTHORS: Chulanovskiy, V.M., Peysakhson, I.V. and Shcheptin, D.N.

TITLE: Determination of the Absolute Values of the Intensity Parameters in an Infrared Absorption Spectrum when Secular Distortions are Absent. II.

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 57-60 (USSR)

ABSTRACT: In Part I (Optika i spektroskopiya, 1959, Vol 7, 763) the authors described three methods of determination of the intensity parameters for the case when secular distortions are absent (no details of these methods are given here). The present paper reports the results of a comparison of these methods and deals with the possibility of their use in current spectral apparatus. To compare their methods the authors used the $\nu_{C--H} = 3020$ cm^{-1}, $\nu_{C=O} = 3417$ cm^{-1}, $\nu_{C\equiv C} = 2120$ cm^{-1} and $\nu_{N--H} = 3437$ cm^{-1} bands of chloroform (Table 1), methyl ethyl ketone (Table 2), hexine (Table 3), and a solution of diphenylamine in CCl_4 (Table 4) respectively. Each of these bands had a different half-width b (b ranged between 12 and 35 cm^{-1}). A Perkin--Elmer monochromator (LiF prism) was employed together with an amplifier FEOU-18 and a recorder EPP-09. Before measurements the entry and exit slit-widths were equalized. The results are given in Table 1-5, where the following symbols are used: S is the geometrical width of the

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Determination of the Absolute Values of the Intensity Parameters in an Infrared
Absorption Spectrum when Secular Distortions are Absent. II.

slits; $\Delta \nu_0$ is the normal spectral widths of the slits; $\Delta \nu_e$ is the
effective spectral width of the slits; b is the observed band half-width
(its width when $K = 0.5 K_m$); b_0 is the true half-width assuming a
dispersion form of the band contour; K_m is the optical density observed
at the absorption maximum; k_m is the true optical density calculated
for a given slit-width assuming a dispersion form of the band contour;
k_m^* is the true optical density calculated using the three-point
technique (cf. Part I). The relative error in determination of k_m and
b_0 was 0.4-0.7%. The maximum departure of single values from the
means did not exceed 1% for slit-widths up to 0.4 band-width. The
results for the four absorption bands employed are given separately
in Tables 1-4. Table 5 summarizes the results and lists also the values
of b_0 and k_m obtained by extrapolation to $\Delta \nu_e = 0$ (cf. Part I). Table 5
shows that all methods give practically the same values of the optical
density at the band maxima, i.e. k_m, k_m^* and $(k_m)_{extrapol}$ are practically
the same. There are 2 figures, 5 tables and 2 references, 1 of which is
Soviet and 1 from an international journal.

SUBMITTED: June 1, 1959

Card 2/2

24.3410

68325

SOV/51-8-1-26/40

AUTHOR: Chulanovskiy, V.M.

TITLE: Discussion of Some of the Papers Presented at the Conference on the Theory of Spectroscopic Instruments

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, p 126 (USSR)

ABSTRACT: I.V. Peysakhson and D.N. Shchepkin showed that it is possible to determine the true values of the absorption coefficient at a band maximum and of the band half-width for not too narrow infrared absorption bands by means of the usual apparatus. Experience shows that such measurements should be carried out under conditions which avoid distortions due to scanning, i.e. measurements should be made at individual points. This is how it is done. For each selected wavelength the light fluxes I and I_0 are recorded by placing first a cell with the solution and then the cell with the solvent in front of the slit (cf. figure on p 126). The advantages of this method are: (a) a complete absence of errors due to inertia of the recording system and an easy averaging of noise at the horizontal portions of the record;

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Discussion of Some of the Papers Presented at the Conference on the Theory of
Spectroscopic Instruments

(b) frequent verification of the zero level avoids the necessity
of additional control measurements (normally required in recording
band contours with single-beam instruments); (c) it is not necessary
to record all points of the curve and a suitable selection of the
points shortens the time required to produce records; (d) the
experimental errors are smaller by one order of magnitude than the
errors made in recording a continuous contour.   There is 1 figure.
Note.   This is a complete translation.

Card 2/2

S/051/60/008/03/036/038
E201/E191

AUTHOR: Chulanovskiy, V.

TITLE: International Conference on Molecular Spectroscopy in
            Bologna (Italy)

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 3,
            pp 429-430 (USSR)

ABSTRACT: A Conference on Molecular Spectroscopy was held on
          September 7-12, 1959, in Bologna. It was organized by
          the International Union of Pure and Applied Physics,
          Bologna University and other bodies. Over 500 people
          took part in the Conference and the number of papers
          presented exceeded 220. There were Soviet scientists
          among the participants and the following of them
          presented papers: Ye.F. Gross, N.D. Sokolov,
          V.M. Chulanovskiy, D.N. Shigorin and P.P. Shorygin.
          The main work of the Conference was divided into six
          sections: five of them were; general theory of
          molecular spectra, electron spectra, infrared spectroscopy,
          Raman spectra, microwave spectra (the sixth section is not
          named in this report). At the opening of the Conference
          the Chiamichian Medals were presented to leading

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S/051/60/008/03/036/038
E201/E191

International Conference on Molecular Spectroscopy in Bologna
(Italy)

spectroscopists; among them was a Soviet scientist,
A.N. Terenin.   In the second section D.N. Shigorin
presented a paper on fluorescence of anthraquinone and
its derivatives in solid solutions, P.P. Shorygin dealt
with dependence of the spectra on the angle of rotation
of the methoxy- and dimethylamine groups with respect to
the benzene-ring plane, and the work of Ye.F. Gross on
excitation spectra was discussed.   In the third section
the present author (V.M. Chulanovskiy) read papers on
classification of solutions based on the nature of inter-
molecular interaction, and on spectroscopic investigations
of the hydrogen bond, while M. Khorak, I. Ionash and
I. Pliva (Prague, Czechoslovakia) reported their work on
the linear relationship between the displacement of the
C==O-group band in carbonic acids and the frequency of
this band.   The Conference covered a very wide range of
subjects and the papers presented were of a level comparable
with those read at the conferences organized by the
Commission on Spectroscopy of the Academy of Sciences, USSR.

Card
2/2

KALITEYEVSKIY, N.I.; CHULANOVSKIY, V.M.

Thirteenth Conférence on Spectroscopy. Opt. i spektr. 9 no.5:683-
684 N '60.   (MIRA 13:11)
          (Spectrum analysis--Congresses)

CHULANOVSKIY, V. M.

STRUCTURE AND PHYSICAL PROPERTIES OF MATTER IN A LIQUID STATE
reports read at the 4th Conference convened in KIYEV from 1 to 5 June
1959, published by the publishein House of KIYEV University, KIYEV,
USSR, 1962

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S/048/62/026/010/002/013
B101/B186

AUTHORS: Chulanovskiy, V. M., Bulanin, M. O., Denisov, G. S., Shuva-
lova, Ye. V., and Shchepkin, D. N.

TITLE: Effect of the solvent on the infrared spectrum of the substance,
and its consideration in analytical work

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 10, 1962, 1230 - 1236

TEXT: The variation in the spectrum of a solvent in the presence of a
dissolved substance, and thus also of its absorption coefficient, is dis-
cussed on the basis primarily of Western publications. Reference is made
to a paper by M.-L. Josien et al. (Compt. rend. Acad. sci., 249, 256 (1959))
concerning the dependence of symmetrical and asymmetrical vibrations of the
CH_2 group in CH_2Cl_2 on the concentration, confirmed experimentally by the
present authors. The 3630 cm^{-1} which characterises the formation of H
bonds was found for methyl alcohol, just as it had been found for benzyl
alcohol by J.J. Fox, A. E. Martin (Trans. Farad. Soc., 36, 897 (1940)). In
contrast to M. Van Thill, E. D. Becker, J. C. Pimentel (J. Chem. Phys., 27,
Card 1/2

S/048/62/026/010/013/013
B117/B186

AUTHORS: Chulanovskiy, V. M., Gol'denberg, A. L., Pirozhnaya, L. N.,
Popova, G. S., Tarutina, L. I., and Fratkina, G. P.

TITLE: Spectral examination of the aging processes of polymers

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 26, no. 10, 1962, 1316-1317

TEXT: Infrared spectroscopy was examined for its applicability to
investigating the aging and stabilization of polymers (e.g., high-density
and low-density polyethylene, ethylene - propylene copolymer, fluorine
polymers, PVC, polyvinyl alcohol and its acetals, copolymers on the basis
of styrene). Conclusions: For the purpose of investigating the oxidation
of polymers, infrared spectroscopy is more suitable than chemical
analysis as it can be used to determine carbonyl groups in various types
of compounds (e.g., in acids, aldehydes, ketones, and ether compounds),
to establish the point of saturation of OH and CO groups, to observe the
decomposition of the main groups, and to analyze the products of
decomposition. Results of work in this field will be published later.

Card 1/1

CHULANOVSKIY, V.M.

Structure of the 3340 cm.$^{-1}$ band of liquid methanol (CD_3OH).
Opt. i spektr. 17 no.4:522-527 O '64.

(MIRA 17:12)

SOKOLOV, N.D., prof., otv. red.; CHULANOVSKIY, V.M., prof., otv.
        red.; BUCHACHENKO, A.L., red.

    [Hydrogen bonding] Vodorodnaia sviaz'; sbornik statei.
    Moskva, Izd-vo "Nauka," 1964. 339 p.   (MIRA 17:8)

    1. Akademiya nauk SSSR. Institut khimicheskoy fiziki.

OGILVI, N. A.; CHULBAROV, V. N.

"Evaluating of ground water deserts."
Presented at the Symposium on Methods of Evaluating Resources
of Underground Water with Emphasis on Arid Aone Problems, Athens
11-20 Oct 1961

CHULDOV, Ye.I.

1. KHIZHNYAK, S. P., Engs.; CHULDOV, Ye. I.

2. USSR (600)

4. Steam Boilers

7. Tenon screens in operation. Elek. sta., 23, No. 10, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

CHULEV, B.; ANEV, G.

Electric power as a participant in the net cost of coal. p. 18
Minno Delo Vol. 13, No. 3, May/June 1958, Sofiia, Bulgaria.

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 10,
Oct. 58

CHuLeVA, A.

Country   : Bulgaria
Category   : Human and Animal Physiology, Circulation

Abs. Jour. : Ref Zhur Biol, No. 2, 1959, No. 8087

Author   : Zabartha.I.; Angelov,A.; Nikolov,A.; Zozakova,A; Chu-
Title   : leva,A.; Nushnov,D; Ignatova,E; Nikolova,N.; Minchev,T.
              : The Effect of the Bulgarian Synthetic Estrogenic Prepa-
              ration "Vitestrol" on Blood Pressure.

Orig Pub.   : Izv. Otd. biol. i med. nauki. Bolg. AN. Ser. eksperin.
              biol. i med., 1957, No. 1, 47--55

Abstract   :   Vitestrol was injected in doses of 0.5, 1.5 and
              5 mg/kg into normal, atropinized, vagotomized and de-
              cerebrate cats, as well as into cats with carotid
              sinuses removed. Vitestrol lowered blood pressure by
              16--35% (depending upon the dose) within 72--395 seconds.
              There were no substantial differences between the normal
              and the operated animals. It is suggested that vitestrol
              acts directly upon the smooth muscle elements of the
              vessel walls.--S.B.Stefanov.

Card: 1/1

CHULIK, I-I.

YELENEVSKAYA, N.B., zaveduyushchiy; DROB', I.M.; CHULIK, I.I.

Observations of minor planets at the L'vov Astronomical Observatory. As-
tron.tsir. no.133:4 Ja '53.   (MLRA 6:6)

1. Otdel nebesnoy mekhaniki L'vovskoy Astronomicheskoy Observatorii.
                                                         (Planets, Minor)

AUTHOR: Svoboda, A. (Prague); Chulik, K. (Prague)

TITLE: Algorithm for solving Boolean equations

SOURCE: Avtomatika i telemekhanika, v. 25, no. 3, 1964, 374-381 .

TOPIC TAGS: Boolean equation, Boolean function

ABSTRACT: A set W of n Boolean equations $F_i(x_j, X_k) = G_i(x_j, X_k)$, where F_i and G_i are Boolean functions is considered. From these equations, n Boolean tables $W_i = F_i G_i \mp F_i G_i$ $(i=1,2,...,n)$ are set up. A discriminant. $D = W_1 W_2 ... W_n$ is set up by means of a Boolean intersection W_i and evaluated as an arithmetical product:

$$[D] = \prod_{q=0}^{q=2^Q-1} u_q = s,$$ in which u_q are nonzero elements in the column q . The

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ACCESSION NR: AP4033359

discriminant is subdivided into s possible different components:

$$D^s \quad (s = 1, 2, \ldots, S),$$
$$D = D^1 + D^2 + \cdots + D^s \quad \text{Boolean sum}$$
$$D^s \neq D^t \qquad \text{for all } s \neq t,$$
$$u_q^s = 1 \quad \text{for} \quad q = 0, 1, 2, \ldots, 2^q - 1 \text{ and } s = 1, 2, \ldots, S,$$

From each D^s, R functions $w_k^s = D^s X_k \quad (k = 1, 2, \ldots, R)$ are constructed. By replacing each column w_k^s that contains nonzero elements with 1, the conversion of w_k^s into W_k^s is effected. Finally, the W_k^s functions are written in the Boolean form. Orig. art. has: 10 figures and 21 formulas.

ASSOCIATION: none

SUBMITTED: 03Apr63   DATE ACQ: 15May64   ENCL: 00

SUB CODE: MA, DP   NO REF SOV: 000   OTHER: 012

Card 2/2

L 33530-66   T   IJP(c)

ACC NR: AP6023465   SOURCE CODE: CZ/0026/65/010/006/0459/0468

AUTHOR: Chulik, Karel--Culik, K.

ORG: Mathematics Laboratory, CVUT, Prague (Matematicka laborator CVUT)

TITLE: Construction of an automaton mapping

SOURCE: Aplikace matematiky, v. 10, no. 6, 1965, 459-468

TOPIC TAGS: automaton, computer output unit, algorithmic language, computer technology

ABSTRACT: The article presents the conditions for an automaton mapping. The minimum number of empty symbols is given for the following cases: 1. The number of empty symbols is the same for all output words. 2. The number of empty symbols is minimal for every individual output word. Orig. art. has: 11 formulas and 2 tables. [Orig. art. in Russian] [JPRS]

SUB CODE: 09 / SUBM DATE: 24Apr64

Card 1/1

CHULIMOV, B.V.

Mechanization of car movement on continuous lines for
initial repair. Obm.tekh.opyt.na avt.transp. no.3:
39-43 '60.   (MIRA 13:7)
    (Motortrucks--Maintenance and repair)

YAKOVLEV, Lev Mikhaylovich;KOGAN, Arkadiy Solomonovich; CHULIN, N.I.,
    spetsred.; AYNZAFT, Yu.B., red.; FORMALINA, Ye.A., tekhn. red.

[Operation and repair of fishing vessel diesels] Tekhnicheskaia
ekspluatatsiia i remont dizelei rybopromyslovykh sudov. Moskva,
Rybnoe khoziaistvo, 1962. 389 p.   (MIRA 15:5)
    (Marine diesel engines—Maintenance and repair)
            (Trawls and trawling)

BRODSKIY, A.A.,inzh.; CHULIN, N.S.,inzh.

Mechanization of loading and unloading operations of freight-
carrier motorboats. Proizv.-tekh. sbor. no.4:38-41 '59.   (MIRA 13:10)

1. TSentral'noye proyektno-konstruktorskoye byuro.
   (Cargohandling--Equipment and supplies)

CHULIN, P.I.

Operation of the end packing of 14N12x2 mainline pumps in petroleum pumping stations. Transp. i khran.nefti i nefteprod. no. 3:6-8 '64.

(MIRA 17:5)

1. Saratovskoye rayonnoye nefteprovodnoye upravleniye.

GUL'KO, A. Ye.; CHULIN, V.M.

    Sparkproof electronic relay. Transp. i khran. nefti i nefteprod.
no.4:17-19 '64
                                      (MIRA 17:7)

    1. Spetsial'noye konstruktorskoye byuro "Transneft'avtomatika".

CHULIN, V.M.; BAKANOV, Ye.I.

Pressure-drop signal indicator with explosion protection.
Transp. i khran. nefti i nefteprod. no.4835-36 '64
(MIRA 17:7)

1. Spetsial'noye konstruktorskoye byuro "Transneft'avtomatika".

DROGICHINA, E. A.; SADCHIKOVA, M. N.; GINZBURG, D. A.; CHULINA, N. A.
(Moskva)

Some clinical manifestations of the chronic effect of centimeter
waves. Gig. truda i prof. zab. no.1:28-34 '62.

(MIRA 15:2)

1. Institut gigiyeny truda i profzabolevaniy AMN SSSR.

(ELECTROENCEPHALOGRAPHY)
(MICROWAVES--PHYSIOLOGICAL EFFECT)

CHuLiNA, Ye P.

USSR/Microbiology - Industrial Microbiology.

F-3

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19462

Author   : Semikhatova, N.M., Chulina, E.P.
Inst   : -
Title   : Osmosensitivity of Bakers' Yeast.

Orig Pub : Khlebopek. i konditersk. prom-st, 1957, No 2, 31-33

Abstract : It was shown that bakers' yeasts, which have a standard
            leavening power, may exhibit various osmosensitivities.
            Utilization of osmosensitive yeasts for preparing dough
            causes an insufficient rising of dough in the pan and as
            a result the quality of the bread baked is impaired.
            Osmosensitive yeasts develop more slowly than osmostable
            yeasts; and therefore when they are used as the starting
            point in yeast production they will produce a lasser
            yield of commercial product (70% of raw material). Also,
            osmosensitive yeast keeps poorly at 4°; its osmosensiti-
                                                              vity

Card 1/2

CHULINA, Ye. P., Cand Tech Sci -- (diss) "Study of the biochemical and technological properties of the mixtures of rye and wheat wallpaper meal." Mos, 1958. 11 pp (Min of Higher Education USSR, Mos Technological Inst of Food Industry), 100 copies (KL, 18-58, 100)

-77-

MEL'TSER, I.A.; KURAMSHIN, Yu.N.; Prinimali uchastiye: LOZENKO, M.F.;
     CHULINA, Ye.P.; BELOVA, L.D.

     New types of foam fire extinguishers for yeast plants. Trudy
     TSNIIKHP no.8:169-172 '60.   (MIRA 15:8)
          (Fire extinction--Chemical systems)